III. ARGUMENTS

Nowhere does the art of record, whether considered alone or in combination, teach or suggest an evaporative device adapted to pre-heat the high-temperature superconductor material in a first part of the evaporation zone by a first energy of the beam of energy transferring medium and to evaporate the pre-heated high-temperature superconductor material in a second part of the evaporation zone by a second energy of the beam of energy transferring medium, wherein said second energy is greater than said first energy, as described and claimed herein.

Specific support for the above amendment, as well as advantages of the claimed adaptation and a specific example thereof can be found, for example, at page 11 of the specification, lines 1-6; in Example 8 provided on page 17 of the specification, lines 20-30; and again in Figure 6b.

Since the prior art utterly fails to teach or suggest the invention of claim 1, as amended, it follows that the outstanding rejection pending thereagainst has been rendered moot and should now be removed, *mutatis mutandis*. And since all claims depending from an allowable independent claim must also be allowable, it follows that all outstanding grounds of rejection pending against claims 2-22 (each of which depend, either directly or indirectly, from amended claim 1) have also been overcome and should now be removed. *See In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Independent method claim 23 stands rejected as being unpatentable over JP 02-0930062 to Nakamura because "the particular size of the granulate used is

prima facie obvious in the absence of a convincing showing of unexpected results commensurate in scope with the claim".

Those of ordinary skill in this particular art field, however, will readily appreciate that in this instance the particular granulate size is not at all obvious. To the contrary, the grain size of 0.05 mm to 0.5 mm claimed herein is, surprisingly, the decisive parameter to continuously grow high temperature superconductor films of continuous high quality. This is based on the following research results of the inventor:

(a) If the grains are larger than 0.5 mm their heat capacity will be too high, and thus each grain requires too much time to completely evaporate. This leads to a fractionation and therefore to medium-term fluctuation of the film composition (see, for example, p. 12, l. 12 of the description).

When using a granulate in which the grains of which are within the claimed range, each individual grain also fractionates. However, apart from a small start-up period, there is – due to the small grain size – always a sufficient number of grains entering the evaporation zone so that material of all fractionation steps is at all times available (see, for example, p. 6, 1. 24 of the description). In other words, a certain grain count is necessary to obtain high temperature superconductor films of high quality (see, for example, p. 11, l. 8, Fig. 6c).

(b) However, if the grains become too small, they adsorb a lot of water (in relative terms). The high water content leads to an explosive bursting of the grains when they come into contact with the energy transferring medium (the electron beam). To reduce this effect the grains are preheated. (The apparatus claim 1 has been amended by this feature). For grains below the indicated size range, pre-heating can no longer reduce the explosive bursting of small grains.

For persuasive purposes, Applicant notes that a parallel European patent (EP 1 558 782 B1) has already been granted over the same Hill reference which recites the present version of independent method claim 23, as amended. A copy of the patent is attached for the Office's convenience.

Since the prior art utterly fails to teach or suggest the invention of claim 23, as amended, it follows that the outstanding rejection pending thereagainst has been rendered moot and should now be removed. And since all claims depending from an allowable independent claim must also be allowable, it follows that all outstanding grounds of rejection pending against claims 24-27 (each of which depend, either directly or indirectly, from amended claim 23) have also been overcome and should now be removed. *See In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

IV. CONCLUSION

In view of the foregoing, Applicant submits that all outstanding grounds of rejection pending in the case have been overcome, and the application is now in condition for allowance. Reconsideration and withdrawal of the rejections and allowance of all claims pending herein are respectfully requested.

Respectfully submitted,

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Date

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